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EXAMINER
KAO, JUTAI

ART UNIT	PAPER NUMBER
2416	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/550,146	GEILFUS ET AL.	
	Examiner	Art Unit	
	JUTAI KAO	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/12/2008 has been entered.

Response to Amendment

The amendments filed on 09/12/2008 have been entered into prosecution. The amendments change the scopes of the original claims and new grounds of rejections are therefore required.

Response to Arguments

2. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

The original grounds of rejections are maintained while a new reference is added to teach the newly added claim elements which recite “a Virtual Router Redundancy Protocol (VRRP) obtained from an Internet Protocol Version 4 provided by an Internet Engineering Task Force (IETF) and an Internet Protocol Version 6 provided by the Internet Engineering Task Force (IETF)”.

Within the applicant's remark, the applicant also argues, in addition to the newly added claim elements, that previously cited reference, Jensen includes a standby router being the acting router while the present invention uses the master router as the acting router. However, the claim limitation does not require the master router being the acting router.

The applicant further argues that the present invention modifies or extends the currently existing VRRP while Jensen suggests that the existing VRRP mechanism is replaced by a completely new mechanism. The applicant then tries to support this argument by citing a passage in Jensen reciting the following: “One embodiment of the invention may provide redundancy in a network without the disadvantages associated with conventional systems, such as VRRP system” in Jensen, paragraph 10. However, this passage only represents one embodiment of Jensen's invention, not the entirety of Jensen's invention. In addition, Jensen shows in paragraph [0027], wherein "this example router 106 may be considered an active route and router 108 may be considered a standard router. This could be accomplished by configuring both router 106 and router 108 in accordance with the VRRP”. Although it is mentioned that in “one embodiment” of the invention, an alternative routing mechanism may be used, Jensen still shows that VRRP may be used in its system.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen (US 2002/0186653) in view of the NPL document RFC 2338: "Virtual Router Redundancy Protocol for IPv6" (this NPL is referenced as NPL 1 from hereon).

Jensen discloses a method to provide redundancy in a network including the following features.

Regarding claim 1, a method for routing telecommunications traffic between a network (see network system 100 in Fig. 1) and a sub-network (see sub-network including routers 104-110 and clients 112-120 in Fig. 1), the sub-network including a master router (see router 108 in Fig. 1) and a back up router (see router 106 in Fig. 1), wherein the master and back up routers route the traffic in the sub-network according to a virtual router redundancy protocol (see “VRRP system, one router may be elected as the master router with the other routers acting as backups in case of the failure of the

master router" recited in paragraph [0009]; or see ""standby router" as used herein may refer to a network node that operates as part of an alternate path to route information" recited in paragraph [0013]; both paragraphs show methods of redundant routing), the method comprising the steps of: setting criteria that relates to a condition of the network to the redundancy protocol of the sub-network (see "Once router 108 has determined that router 106 has failed" recited in paragraph [0029]; wherein the failure of router 106 is considered the criteria); triggering switching between the routing devices according to the redundancy protocol (see "Once router 108 has determined that router 106 has failed, router 108 may take over operations for router 106" recited in paragraph [0029]).

Regarding claim 17, a system for routing communications traffic (see network system 100 in Fig. 1), the system comprising: a network for transceiving the telecommunication traffic (see network system 100 and/or network 102 in Fig. 1); a sub-network for transceiving the telecommunications traffic from with the network (see sub-network including routers 104-110 and clients 112-120 in Fig. 1); a master router (see router 108 in Fig. 1) and a back up router (see router 106 in Fig. 1), wherein the master router and the backup router are configured to route the telecommunications traffic in the sub-network according to a virtual router redundancy protocol (see "VRRP system, one router may be elected as the master router with the other routers acting as backups in case of the failure of the master router" recited in paragraph [0009]; or see ""standby router" as used herein may refer to a network node that operates as part of an alternate path to route information" recited in paragraph [0013]; both paragraphs show methods of redundant routing); and a criteria that relates a condition of the network to the

redundancy protocol, the master router configured to monitor the criteria thereby causing the master router to trigger switching between the master router and the back up router route the telecommunications traffic according to the condition in the network (see “Once router 108 has determined that router 106 has failed” recited in paragraph [0029]; wherein the failure of router 106 is considered the criteria).

Regarding claim 18, wherein the network is an Internet Protocol network (see “IP” recited in paragraph [0009]).

Jensen does not disclose the following features: regarding claims 1 and 17, wherein the routers are configured according to “a Virtual Router Redundancy Protocol (VRRP) obtained from an Internet Protocol Version 4 provided by an Internet Engineering Task Force (IETF) and an Internet Protocol Version 6 provided by the Internet Engineering Task Force (IETF).

NPL1 discloses the Virtual Router Redundancy Protocol including the following features.

Regarding claims 1 and 17, wherein the routers are configured according to a Virtual Router Redundancy Protocol (VRRP) obtained from an Internet Protocol Version 4 provided (see “based on the original version of VRRP (version2) for IPv4” recited in the abstract on page 1) by an Internet Engineering Task Force (IETF) (see “IETF” recited on page 1, section "Status of this Memo") and an Internet Protocol Version 6 provided by the Internet Engineering Task Force (IETF) (see “IPv6” recited in the title).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Jensen using features, as taught by NPL 1, in order to perform routing suitable for networks applying IPv4 and IPv6.

6. Claim 2-7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen (US 2002/0186653) in view of NPL 1 and Thang (US 2002/0167898).

Jensen and NPL 1 disclose the claimed limitations as shown in the above paragraphs.

Jensen and NPL 1do not disclose the following features: regarding claim 2, wherein the criteria relates an interruption in a link of a router interface between the network and the sub-network to switching of the router devices according to the redundancy protocol; regarding claim 3, wherein the criteria relates a number of bit failures of a router interface between the network and the sub-network to switching of the router devices according to the redundancy protocol; regarding claim 4, wherein the criteria relates a number of bit failures of a router interface between the network and the sub-network to switching of the router devices according to the redundancy protocol; regarding claim 5, wherein the criteria relates traffic load of a router interface between the network and the sub-network to switching of the router devices according to the redundancy protocol; regarding claim 6, wherein the criteria relates traffic load of a router interface between the network and the sub-network to switching of the router devices according to the redundancy protocol; regarding claim 7, wherein the criteria relates traffic load of a router interface between the network and the sub-network to

switching of the router devices according to the redundancy protocol; regarding claim 16, wherein the criteria relates a number of resources of the network available to switching of the router devices according to the redundancy protocol.

Thang discloses a restoration of IP networks using precalculated restoration routing tables including the following features.

Regarding claim 2, wherein the criteria relates an interruption in a link (see Fig. 5, which shows a link interruption between nodes 2 and 3, and the corresponding rerouting scheme) of a router interface between the network and the sub-network (Jensen discloses the network/sub-network architecture as discussed in the above paragraphs) to switching of the router devices (see the secondary routing scheme in Fig. 5c) according to the redundancy protocol (disclosed in Jensen).

Regarding claim 3, wherein the criteria relates a number of bit failures (see "Failures…high bit error rate" recited in paragraph [0009]) of a router interface between the network and the sub-network (Jensen discloses the network/sub-network architecture as discussed in the above paragraphs) to switching of the router devices (see the secondary routing scheme in Fig. 5c) according to the redundancy protocol (disclosed in Jensen).

Regarding claim 4, wherein the criteria relates a number of bit failures (see "Failures…high bit error rate" recited in paragraph [0009]) of a router interface between the network and the sub-network (Jensen discloses the network/sub-network architecture as discussed in the above paragraphs) to switching of the router devices

(see the secondary routing scheme in Fig. 5c) according to the redundancy protocol (disclosed in Jensen).

Regarding claim 5, wherein the criteria relates traffic load (see "Failures…congestion" recited in paragraph [0009], wherein congestion is known to be a condition of traffic overload) of a router interface between the network and the sub-network (Jensen discloses the network/sub-network architecture as discussed in the above paragraphs) to switching of the router devices (see the secondary routing scheme in Fig. 5c) according to the redundancy protocol (disclosed in Jensen).

Regarding claim 6, wherein the criteria relates traffic load (see "Failures…congestion" recited in paragraph [0009], wherein congestion is known to be a condition of traffic overload) of a router interface between the network and the sub-network (Jensen discloses the network/sub-network architecture as discussed in the above paragraphs) to switching of the router devices (see the secondary routing scheme in Fig. 5c) according to the redundancy protocol (disclosed in Jensen).

Regarding claim 7, wherein the criteria relates traffic load (see "Failures…congestion" recited in paragraph [0009], wherein congestion is known to be a condition of traffic overload) of a router interface between the network and the sub-network (Jensen discloses the network/sub-network architecture as discussed in the above paragraphs) to switching of the router devices (see the secondary routing scheme in Fig. 5c) according to the redundancy protocol (disclosed in Jensen).

Regarding claim 16, wherein the criteria relates a number of resources of the network available (see "Failures…addition of resources" recited in paragraph [0009],

that is, by adding resources, the number of resources of the network system changes, which is considered as a failure condition requiring restoration in Thang's system) to switching of the router devices according to the redundancy protocol (disclosed in Jensen).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Jensen and NPL 1using features, as taught by Thang, in order to provide fast recovery in different network failure conditions.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen (US 2002/0186653) and NPL 1 in view of Callon (US 2002/0131362).

Jensen and NPL 1 disclose the claimed limitations as shown in the above paragraphs.

Jensen and NPL 1 do not disclose the following features: regarding claim 8, wherein the criteria relates an availability of a router interface between the network and the sub-network according to a routing table coupled to the network to switching of the router devices according to the redundancy protocol.

Callon discloses a method of network routing using link failure information including the following features.

Regarding claim 8, wherein the criteria relates an availability of a router interface between the network and the sub-network according to a routing table (see "router 4D receives an update message from router 4C indicating that this route is also unavailable does the routing table of router 4D converge to accurately reflect the current topology"

recited in paragraph [0025], that is, the unavailability update message of the route in routing table triggers the switching and the routing table update) coupled to the network to switching of the router devices according to the redundancy protocol (disclosed in Jensen).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Jensen and NPL 1 using features, as taught by Callon, in order to provide fast recovery in different network failure conditions.

8. Claim 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen (US 2002/0186653) in view of NPL 1 and Thang (US 2002/0167898) as applied to claim 2, 3 and 5 above, and further in view of Callon (US 2002/0131362).

Jensen, NPL 1 and Thang disclose the claimed limitations as shown in the above paragraphs.

Jensen, NPL 1 and Thang do not disclose the following features: regarding claim 9, wherein the criteria relates an availability of a router interface between the network and the sub-network according to a routing table coupled to the network to switching of the router devices according to the redundancy protocol; regarding claim 10, wherein the criteria relates an availability of a router interface between the network and the sub-network according to a routing table coupled to the network to switching of the router devices according to the redundancy protocol; regarding claim 11, wherein the criteria relates an availability of a router interface between the network and the sub-network

according to a routing table coupled to the network to switching of the router devices according to the redundancy protocol.

Callon discloses a method of network routing using link failure information including the following features.

Regarding claim 9, wherein the criteria relates an availability of a router interface between the network and the sub-network according to a routing table (see "router 4D receives an update message from router 4C indicating that this route is also unavailable does the routing table of router 4D converge to accurately reflect the current topology" recited in paragraph [0025], that is, the unavailability update message of the route in routing table triggers the switching and the routing table update) coupled to the network to switching of the router devices according to the redundancy protocol (disclosed in Jensen).

Regarding claim 10, wherein the criteria relates an availability of a router interface between the network and the sub-network according to a routing table (see "router 4D receives an update message from router 4C indicating that this route is also unavailable does the routing table of router 4D converge to accurately reflect the current topology" recited in paragraph [0025], that is, the unavailability update message of the route in routing table triggers the switching and the routing table update) coupled to the network to switching of the router devices according to the redundancy protocol (disclosed in Jensen).

Regarding claim 11, wherein the criteria relates an availability of a router interface between the network and the sub-network according to a routing table (see

"router 4D receives an update message from router 4C indicating that this route is also unavailable does the routing table of router 4D converge to accurately reflect the current topology" recited in paragraph [0025], that is, the unavailability update message of the route in routing table triggers the switching and the routing table update) coupled to the network to switching of the router devices according to the redundancy protocol (disclosed in Jensen).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Jensen, NPL 1 and Thang using features, as taught by Callon, in order to provide fast recovery in different network failure conditions.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen (US 2002/0186653) and NPL 1 in view of Lee (US 2003/0023893).

Jensen and NPL 1 disclose the claimed limitations as shown in the above paragraphs.

Jensen and NPL 1 do not disclose the following features: regarding claim 12, wherein the criteria relates a number of entries in a routing table coupled to the network to switching of the router devices according to the redundancy protocol.

Lee discloses a fault-tolerant routing scheme for a multi-path interconnection fabric in a storage network including the following features.

Regarding claim 12, wherein the criteria relates a number of entries in a routing table (see "For example, if the interconnection fabric has four independent routes between each node pair…all four of the paths may be stored as entries in a routing

table…" recited in paragraph [0074]; that is, in this example, a number of four entries are related to the switching according to the redundancy protocol) coupled to the network to switching of the router devices according to the redundancy protocol (disclosed in Jensen).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Jensen and NPL 1 using features, as taught by Lee, in order to provide fast recovery in different network failure conditions.

10. Claim 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen (US 2002/0186653) in view of NPL 1 and Thang (US 2002/0167898) as applied to claim 2 and 3 above, and further in view of Lee (US 2003/0023893).

Jensen, NPL 1 and Thang disclose the claimed limitations as shown in the above paragraphs.

Jensen, NPL 1 and Thang do not disclose the following features: regarding claim 13, wherein the criteria relates a number of entries in a routing table coupled to the network to switching of the router devices according to the redundancy protocol; regarding claim 14, wherein the criteria relates a number of entries in a routing table coupled to the network to switching of the router devices according to the redundancy protocol.

Lee discloses a fault-tolerant routing scheme for a multi-path interconnection fabric in a storage network including the following features.

Regarding claim 13, wherein the criteria relates a number of entries in a routing table (see "For example, if the interconnection fabric has four independent routes between each node pair…all four of the paths may be stored as entries in a routing table…" recited in paragraph [0074]; that is, in this example, a number of four entries are related to the switching according to the redundancy protocol) coupled to the network to switching of the router devices according to the redundancy protocol (disclosed in Jensen).

Regarding claim 14, wherein the criteria relates a number of entries in a routing table (see "For example, if the interconnection fabric has four independent routes between each node pair…all four of the paths may be stored as entries in a routing table…" recited in paragraph [0074]; that is, in this example, a number of four entries are related to the switching according to the redundancy protocol) coupled to the network to switching of the router devices according to the redundancy protocol (disclosed in Jensen).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Jensen, NPL 1 and Thang using features, as taught by Lee, in order to provide fast recovery in different network failure conditions.

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen (US 2002/0186653) in view of NPL 1, Thang (US 2002/0167898) and Nagami (US 2005/0100025).

Jensen and NPL 1 disclose the claimed limitations as shown in the above paragraphs.

Jensen and NPL 1 do not disclose the following features: regarding claim 15, wherein the criteria relates a load of a processor involved in routing the telecommunications traffic to switching of the router devices according to the redundancy protocol.

Thang discloses a restoration of IP networks using precalculated restoration routing tables including the following features.

Regarding claim 15, wherein the criteria relates a load of a processor involved in routing the telecommunications traffic (see “Failures…congestion” recited in paragraph [0009], wherein congestion is known to be a condition of traffic overload) to switching of the router devices according to the redundancy protocol (disclosed in Jensen).

Nagami discloses a network interconnection apparatus, network node apparatus, and packet transfer method including the following features.

Regarding claim 15, wherein congestion could be a network congestion or a CPU overload congestion (see “congestion at the CPU within the router and the network” recited in paragraph [0247]).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Jensen and NPL 1 using features, as taught by Thang and Nagami, in order to provide fast recovery in different network failure conditions.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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